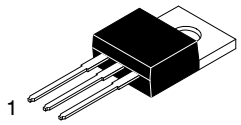
NPN Silicon Transistor

FJP5555



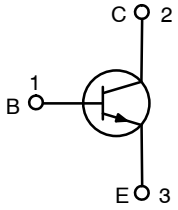
TO−220−3LD
CASE 340AT

Features

- Fast Speed Switching
- Wide Safe Operating Area
- High Voltage Capability
- This Device is Pb-Free and Halide Free

Applications

- Electronic Ballast
- Switch Mode Power Supplies



1. Base
2. Collector
3. Emitter

ABSOLUTE MAXIMUM RATINGS (T_A = 25 °C, unless otherwise noted)

Symbol	Parameter	Value	Unit
BV_{CBO}	Collector-Base Voltage	1050	V
BV_{CEO}	Collector-Emitter Voltage	400	V
BV_{EBO}	Emitter-Base Voltage	14	V
I_C	Collector Current (DC)	5	A
I_{CP}	Collector Current (Pulse)	10	A
I_B	Base Current (DC)	2	A
I_{BP}	Base Current (Pulse)	4	A
T_J	Junction Temperature	150	°C
T_{STG}	Storage Temperature	−55 to +150	°C

Stresses exceeding those listed in the Maximum Ratings table may damage the device. If any of these limits are exceeded, device functionality should not be assumed, damage may occur and reliability may be affected.

THERMAL CHARACTERISTICS (T_A = 25 °C, unless otherwise noted)

Symbol	Parameter		Value	Unit
P_D	Total Device Dissipation	T_A = 25 °C	1.38	W
		T_C = 25 °C	75	W
$R_{\theta JA}$	Thermal Resistance, Junction to Ambient (Note 1)		90	°C/W
$R_{\theta JC}$	Thermal Resistance, Junction to Case (Note 2)		1.66	°C/W

1. $R_{\theta JA}$ test board and fixture under natural convection, JESD51−10 recommended thermal test board.
2. $R_{\theta JC}$ test fixture under infinite cooling condition.

MARKING DIAGRAM

A	= Assembly Location
WW	= Work Week
Y	= Year
Z	= Lot Traceability
J5555	= Specific Device Code

ORDERING INFORMATION

Device	Package	Shipping
FJP5555TU	TO−220−3LD	1000 Units / Tube

ELECTRICAL CHARACTERISTICS (T_A = 25 °C unless otherwise noted) (Note 3)

Symbol	Parameter	Test Condition	Min	Typ	Max	Unit
BV_{CBO}	Collector-Base Voltage	I_C = 500 μA, I_E = 0	1050	–	–	V
BV_{CEO}	Collector-Emitter Voltage	I_C = 5 mA, I_B = 0	400	–	–	V
BV_{EBO}	Emitter-Base Voltage	I_E = 500 μA, I_C = 0	14	–	–	V
h_{FE}	DC Current Gain	V_{CE} = 5 V, I_C = 10 mA	10	–	–	
		V_{CE} = 3 V, I_C = 0.8 A	20	–	40	
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	I_C = 1 A, I_B = 0.2 A	–	–	0.5	V
		I_C = 3.5 A, I_B = 1.0 A	–	–	1.5	V
$V_{BE(sat)}$	Base-Emitter Saturation Voltage	I_C = 3.5 A, I_B = 1.0 A	–	–	1.2	V
C_{ob}	Output Capacitance	V_{CB} = 10 V, f = 1 MHz	–	45	–	pF
t_{ON}	Turn-On Time	V_{CC} = 125 V, I_C = 0.5 A, I_{B1} = 45 mA, I_{B2} = 0.5 A, R_L = 250 Ω	–	–	1.0	μs
t_{STG}	Storage Time		–	–	1.2	μs
t_F	Fall Time		–	–	0.3	μs
t_{ON}	Turn-On Time	V_{CC} = 250 V, I_C = 2.5 A, I_{B1} = 0.5 A, I_{B2} = 1.0 A, R_L = 100 Ω	–	–	2.0	μs
t_{STG}	Storage Time		–	–	2.5	μs
t_F	Fall Time		–	–	0.3	μs
EAS	Avalanche Energy	L = 2 mH	6	–	–	mJ

Product parametric performance is indicated in the Electrical Characteristics for the listed test conditions, unless otherwise noted. Product performance may not be indicated by the Electrical Characteristics if operated under different conditions.

3. Pulse test: pulse width ≤ 300 μs, duty cycle ≤ 2%

TYPICAL PERFORMANCE CHARACTERISTICS

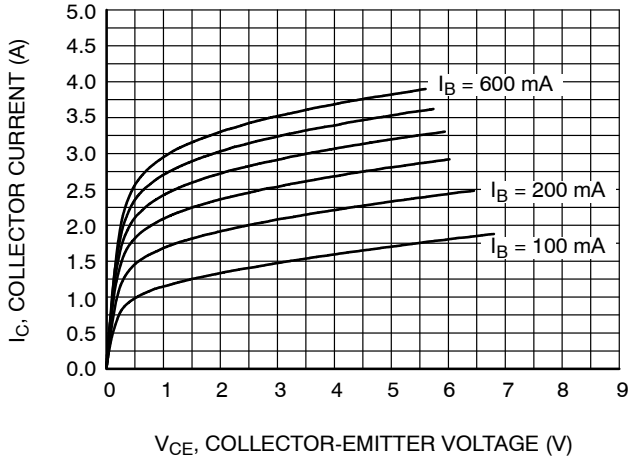


Figure 1. Static Characteristics

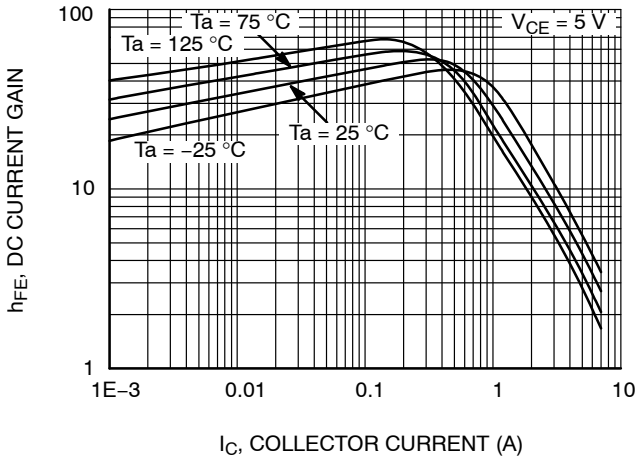


Figure 2. DC CURRENT GAIN

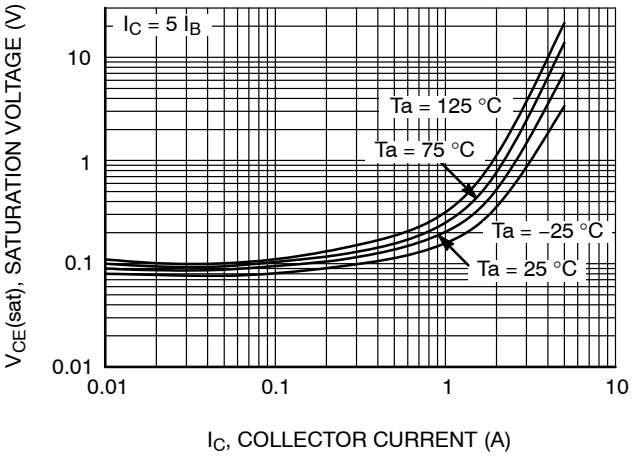


Figure 3. Saturation Voltage

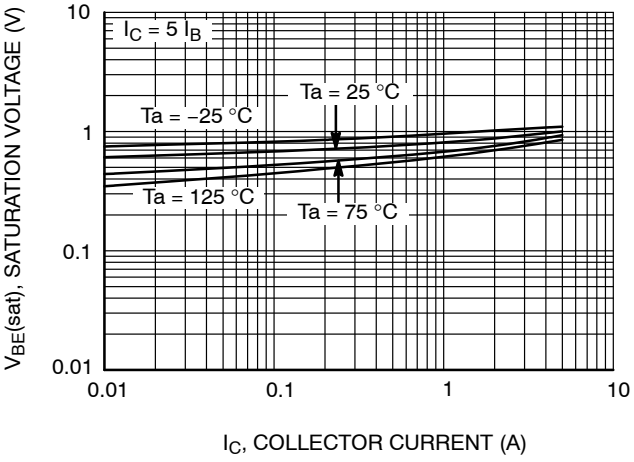


Figure 4. Saturation Voltage

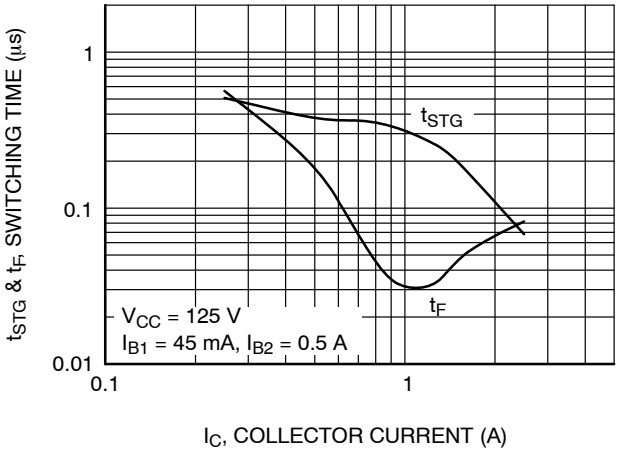


Figure 5. Resistive Load Switching

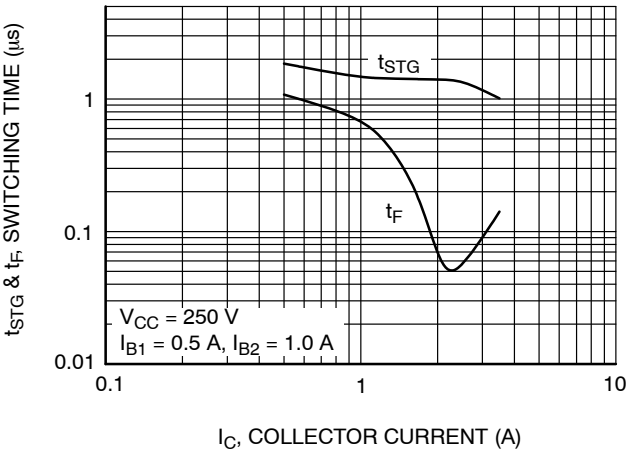


Figure 6. Resistive Load Switching

TYPICAL PERFORMANCE CHARACTERISTICS (continued)

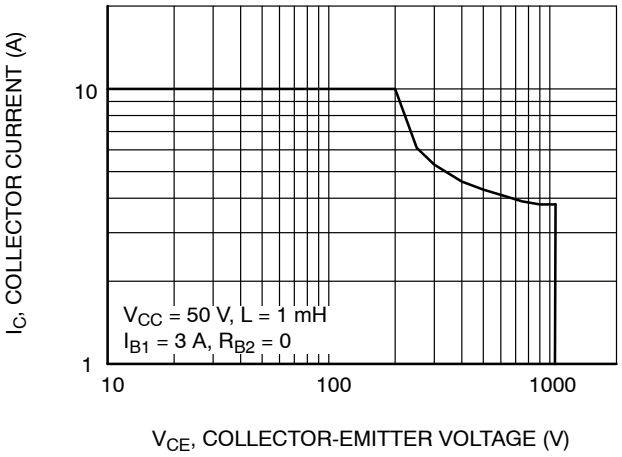


Figure 7. Reverse Biased Safe Operating Area

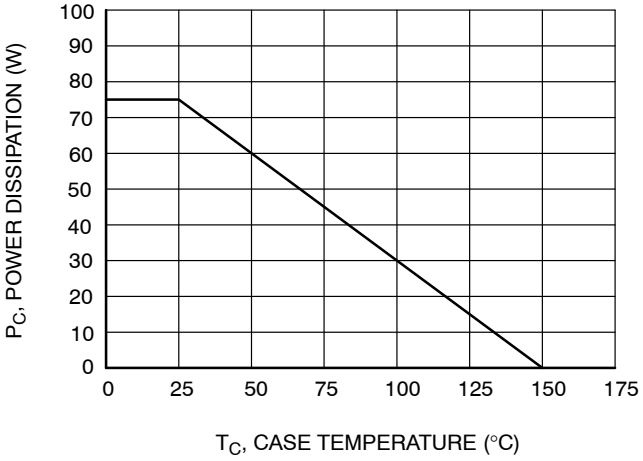


Figure 8. Power Derating

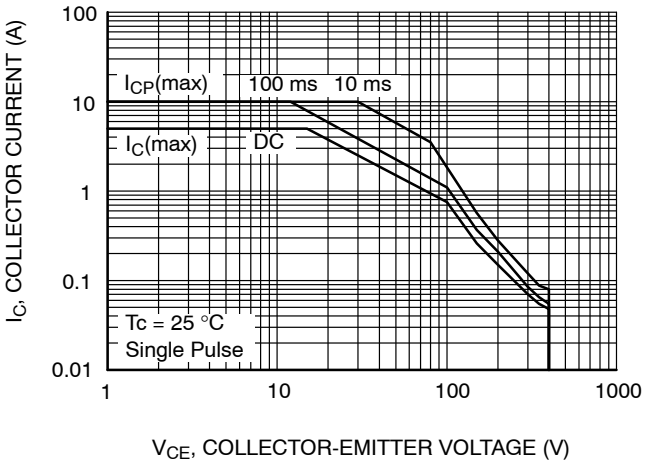
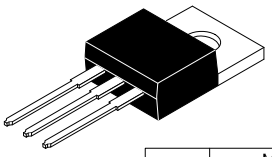


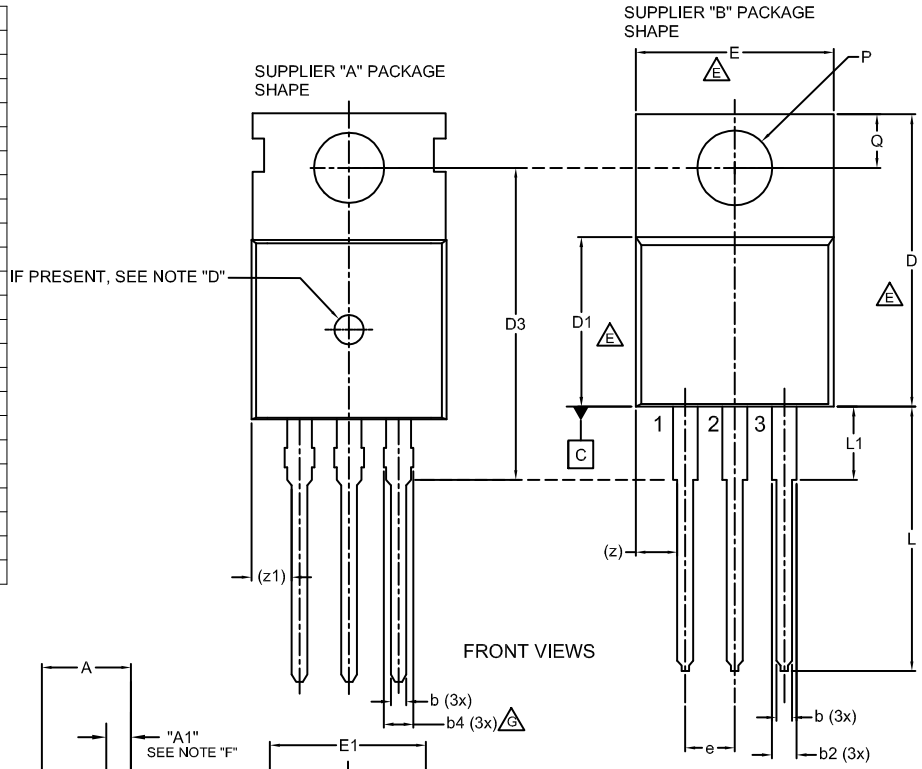
Figure 9. Forward Biased Safe Operating Area

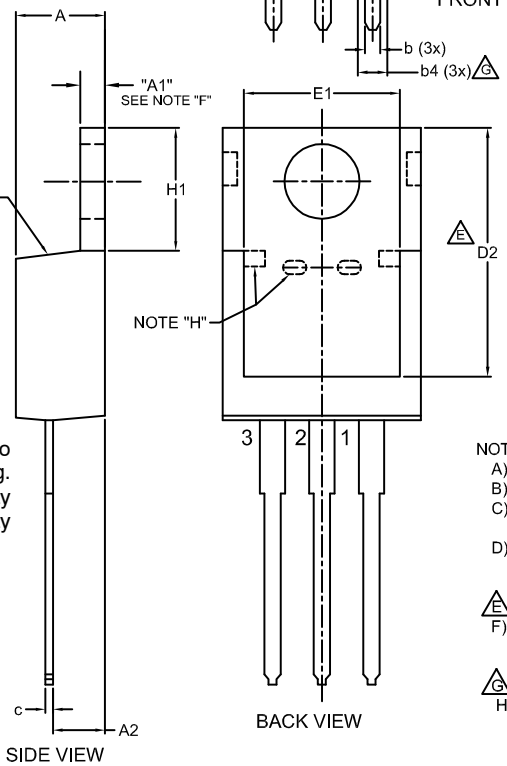


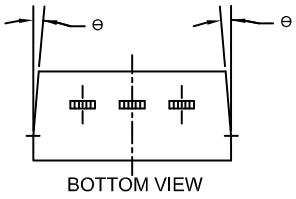
TO−220−3LD
CASE 340AT
ISSUE B

DATE 08 AUG 2022

DIM	MILLIMETERS		
	MIN.	NOM.	MAX.
A	4.00	--	4.70
A1	SEE NOTE "F"		
A2	2.10	--	2.85
b	0.55	--	1.00
b2	1.10	--	1.62
b4	1.42	--	1.62
c	0.36	--	0.60
D	13.90	--	16.30
D1	8.13	--	9.40
D2	11.50	--	14.30
D3	15.42	--	16.51
E	9.65	--	10.67
E1	7.59	--	8.65
e	2.40	--	2.67
H1	6.06	--	6.69
L	12.70	--	14.04
L1	2.70	--	4.10
P	3.50	--	4.00
Q	2.50	--	3.40
z	2.13 REF		
z1	2.06 REF		
Θ	3°	–	5°







GENERIC MARKING DIAGRAM*

XXXX = Specific Device Code
A = Assembly Location
Y = Year
WW = Work Week
ZZ = Assembly Lot Code

*This information is generic. Please refer to device data sheet for actual part marking. Pb−Free indicator, “G” or microdot “▪”, may or may not be present. Some products may not follow the Generic Marking.

NOTES:
A) REFERENCE JEDEC, TO-220, VARIATION AB
B) ALL DIMENSIONS ARE IN MILLIMETERS.
C) DIMENSIONS COMMON TO ALL PACKAGE SUPPLIERS EXCEPT WHERE NOTED [ ].
D) LOCATION OF MOLDED FEATURE MAY VARY (LOWER LEFT CORNER, LOWER CENTER AND CENTER OF THE PACKAGE)
E) DOES NOT COMPLY JEDEC STANDARD VALUE.
F) "A1" DIMENSIONS AS BELOW:
SINGLE GAUGE = 0.51 - 0.61
DUAL GAUGE = 1.10 - 1.45
G) PRESENCE IS SUPPLIER DEPENDENT
H) SUPPLIER DEPENDENT MOLD LOCKING HOLES IN HEATSINK.

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DESCRIPTION:	**TO−220−3LD**	**PAGE 1 OF 1**

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